ECS (SDPS/CSMS) REPLAN

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ECS (SDPS/CSMS) Replan

- **Replanning details provided here are work in progress - NOT final decisions**
- **Replanning process includes detailed review and feedback from Stakeholders (DAACs, Instrument Teams, Flight Projects, User Community)**

Executive Summary

- Serious delay in ECS Science Data Processing Segment
  - TRMM Release (Release A) delayed by 5 months.
  - AM-1 schedule being worked. Replan to be completed for center review by mid-December.
- TRMM and AM-1 releases will be developed in multiple phases to provide essential functions at launch.
  - Strawman set of system capabilities by phase developed for each release
- Project has initiated discussions with Instrument Teams, DAACs, and Flight Projects
- Requesting SEC and EOSDIS Panel guidance on involving representatives of science data user community (i.e., in addition to data producing investigators) in prioritization process

Current Situation

- **ECS Science Data Processing Segment is currently projected to slip:**
  - **From December '96 to May '97 for Release A (TRMM)**
  - **Impact on AM-1/Landsat-7 Release B being analyzed. Project Replan to be completed by Mid-December.**
  - **Process established to involve "stakeholders" (DAACs, Instrument Teams, Flight Projects, User Community) in replanning process. (DAACs and TRMM Project have been involved in initial replanning; periodic status updates have been provided to DAACs, ITs and EOSDIS Panel Chairman)**
  - **Priority is being placed on mission critical and essential functions to avoid impact to launch schedules. "Strawman" prioritization and mapping of functions into these categories has been completed.**

Current Situation (Cont'd)

- FOS and EDOS are on schedule to provide AM-1 mission operations, including spacecraft operations, data capture, and Level 0 processing and distribution
- Replanning assumes continued support of MTPE launch schedules
  - Discussion with stakeholders needed to validate/modify list of functions critical/essential at launch (Presentations at science meetings and "one-on-one" discussions are part of this process)

ECS Replan Approach

- Initial delivery (Release A) will support TRMM and early AM-1/Landsat-7 testing
  - Mission critical/essential functions to be integrated first
- Upgrades to support AM-1 (Release B), e.g.,
  - Data types and expanded capacity, and spatial data management functions will be performed on parallel hardware strings to avoid impact to TRMM operations
    - » Some hardware designated for NSIDC and JPL DAACs could be delayed - could initially be deployed at GSFC and LaRC to provide parallel hardware
    - » Working options with MODIS and NSIDC
- Working with JPL to define minimum essential capability required to support SeaWinds testing
- Evaluating performing science software integration and test at EDC using GSFC Data Server remotely

Release B Phasing

Preliminary

- **Release B Approach**
  - Deliver incrementally as B.0 and B.1 to assure that essential functions are completed first
  - Mapping of functions by delivery phase to be determined after validation by science community and DAACs
- **Assumptions:**
  - NO CHANGES IN LAUNCH DATES
  - Release A capabilities must continue to be supported in B.0
  - AM-1/Landsat-7 launch critical items must be in B.0
- AM-1 Launch ready Release (Release B.0) will provide essential functions needed to:
  - Continue TRMM support provided by Release A
  - Ensure that AM-1 and Landsat-7 data are acquired and available for future use
  - Provide sufficient production capability for higher level products to support early post-launch instrument operations and analysis

Release B Phasing (Cont'd)

Preliminary

- **B.0 capabilities to include required AM-1 mission/science operations functions:**
  - **Spacecraft and instrument operations**
  - **Capture data (including ASTER Data Acquisition Requests)**
  - **Ingest at the assigned DAACs all instrument Level 0 or equivalent data (including ASTER Levels 1A and IB, Landsat 7 Level 0R, and ancillary data) for which EOSDIS is the primary archive**
  - **Backup ancillary data for which EOSDIS is the primary archive**
  - **Process, archive, and distribute higher level products with some limitations on scheduler capacity and inter-DAAC products**
- **Workarounds to be provided where needed, but with capacity limitations**

Issues Identified to Date

- Candidate B.1 functions/B.0 impacts
  - Automated inter-DAAC planning to support production processing
    - » Is manual operation for limited data volume acceptable?
  - Full production scheduling capability
    - » Will phasing in of algorithms as they mature delay need for full number of product generation executions?
    - » What impact will post-launch checkout period have?
  - Subsetting to support production across DAACs
    - » Are workarounds possible for specific products?
  - On-demand processing
    - » Is manual operation (i.e., not automatic through client) acceptable in short term?
  - Media distribution capacity
    - » Need to determine volume that can be supported
- Above workaround options are being considered vs. feasibility of providing capability in B.0

Back-up

Release B Phasing
Examples of Function Mapping

B.0 Capabilities:

1. Spacecraft and instrument operations
2. Capture data - Full capability (including ASTER Data Acquisition Requests)
3. Ingest at the assigned DAACs all instrument Level 0 or equivalent data (ASTER Levels 1A and 1B, Landsat 7 Level 0R, and ancillary data) for which EOSDIS is the primary archive
4. Backup all data identified in item 3 required to produce EOS standard data products
5. Catalog data such that they can be located
6. Support retrieval of data specified in #3
   - 6.1 by Instrument Teams (ITs)
   - 6.2 by all users according to the EOSDIS data access/distribution policy
   - 6.3 Support ability to determine status of orders for data
7. Support DAAC operations (run Product Generation Executives: PGEs - software modules that produce standard products) for pre- and post-launch testing (including support for Quality Assessment) for the case of instruments not using data from other instruments; includes on-demand processing for ASTER

Release B Phasing
Examples of Function Mapping (Cont'd)

B.0 Capabilities (Cont'd):

8. Support retrieval by Instrument Team (IT) users of test data generated in item 7
9. Support DAAC operations for pre- and post-launch testing using data from other instruments
   - 9.1 Local DAAC data from other instruments
   - 9.2 Unsubsetted data from other DAACs
10. Support retrieval by Instrument Team (IT) users of test data identified in item 9
    - 10.1 Electronically
    - 10.2 Via media
11. Support partial production planning and processing using data from a local DAAC, or a given instrument's antecedent (lower level) products from another DAAC. ("partial" means a limitation on total amount of processing; this is to be used at IT's discretion)
12. Support unsubsetted data retrieval by all users from any DAAC (with one-stop shopping capabilities of Release A)

Release B Phasing
Examples of Function Mapping (Cont'd)

B.1 (Fully Operational Release B:

13. Support partial production processing using unsubsetted data from another DAAC
    - 13.1 Electronically
    - 13.2 Via media
14. Support subsetted data retrieval by all users
15. Support production planning and processing - full
    - 15.1 Run PGEs in production mode using data from local DAAC
    - 15.2 Run PGEs in production mode using data from another DAAC
16. Enhance data retrieval tools
    - 16.1 Coincident search (using metadata only)
    - 16.2 Advertising Service (for data discovery)
17. Support reuse of ECS components by other providers